

Docket Number: 1085-041-PWH  
Application No. 10/054,543  
Amendment A

**Drawing Amendment**

Attached to this paper is a replacement drawing sheet that removes from Figure 2 the superfluous "g(" noticed by the Examiner.

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### REMARKS/ARGUMENTS

Claims 1 – 45 are in the application. Reconsideration is respectfully requested.

#### Drawings

The Examiner's approval of the above describe drawing amendment is respectfully requested.

#### Objection to the Specification

The objections made to the abstract of the disclosure refer to locations in the specification that are either non-existent or do not match the objection. Applicant has, however, added with this paper a heading entitled Brief Description of the Drawings.

If there are further objections, applicant respectfully requests that the Examiner identify the offending specification portions by indicating at least the first few lines of that portion so that applicant may accurately identify and correct them as need be.

#### Claim Rejections 35 USC 103(a)

Claim 1 – 3 were rejected as being unpatentable over Applicant's Admitted Prior Art (Fig. 1) in view of Sampath et al. Claim 1 has been amended here to include the limitations of now-cancelled claim 2. Amended claim 1 is believed allowable for the following reasons.

Sampath discloses space-time encoding a signal before using zero-forcing pre-equalisers are applied to the signals produced by the space-time encoding. The signals are then transmitted over a wireless communications channel.

It is submitted that amended Claim 1 is not obvious in light of Sampath and the applicant's Admitted Prior Art. In particular, the Examiner believes that Sampath discloses the features found in original Claim 2 and directs the applicant's attention to page 1176, column 2, lines 39 to 63 and page 1177, column 1, lines 1 to 28, of Sampath. This section, however, does not disclose the features of former claim 2 (now incorporated into amended claim 1). Indeed, it appears that this section merely describes the method used by Sampath to analytically determine an expression for the zero-forcing pre-equalisation filter by making a number of simplifications. For example, Sampath assumes that the transmitter has full channel knowledge, that the number of base-station antennae is equal to the number of terminal antennae, and that the number of taps on the MIMO filter is greater than the number of terminal antennae. At no point are the real channel coefficients derived from uplink channel coefficients as recited by amended Claim 1.

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Accordingly, since neither Sampath nor any other reference of record discloses or suggests all of the elements of amended claim 1, that claim and its dependents are in condition for allowance.

Independent claim 6 has been amended to specify, like amended claim 1, that real channel coefficients are derived from uplink channel coefficients for use in selecting the functions  $g_1(k)$ ,  $g_2(k)$  of the pre-equalisers. Accordingly, claim 6 and its dependent claim 7 are believed to be allowable for the reasons set forth above with respect to claim 1.

Claims 8, 9, 31, 36, 37, 42 and 43 were rejected as unpatentable over Applicant's Admitted Prior Art in view of Gollamudi.

As respects claim 8, the Examiner's attention is respectfully directed to Figure 1 of Gollamudi which diagrammatically depicts the device described in Gollamudi. Specifically, in Gollamudi a single signal is fed into a space-time encoder which supplies two output signals to an amplifier. The amplifier outputs the same two signals which are then transmitted via two antennae. This is in direct contradiction to the present invention which requires the steps of space-time encoding a signal to produce at least two signals, feeding each of the signals into a *transmit processor*, applying respective selected transmit beam-forming weights to the two output signals, and then feeding the respective weighted signals to a signal *combiner* to perform a summing function of the signals and produce a signal for transmission.

Gollamudi clearly does not disclose a signal combiner which performs a summing function or the separate use of a transmit processor. Instead, a signal is space-time encoded, then amplified, and the resulting signals are transmitted from *separate* antennae. Accordingly fails to suggest the features of claim 8 and, therefore, claim 8 and the claims depending therefrom are believed to be in condition for allowance.


Independent claim 31 includes limitations of claim 8 that, as discussed above, are not disclosed or suggested in Gollamudi. Therefore, claim 31 is and its dependent claims are also believed to be allowable for the reasons set forth above with respect to claim 8.

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**Conclusion**

In view of the foregoing, applicant believes that all of the currently pending claims are in condition for allowance, and an early notification to that effect is respectfully requested. If the Examiner has any questions, she is invited to contact applicant's attorney at the below-listed telephone number.

Respectfully submitted,  
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